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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/845,596
Filing Date: April 30, 2001
Appellant(s): MILLER ET AL.

Scott A. Stinebruner
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed Oct. 23, 2006 appealing from the Office action mailed Nov. 4, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Hosting a Network Service on a cluster of Servers Using a Single Address Image by Chung et al. U.S. Patent No. 6,470,389.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim 1- 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Chung et al., Patent No. 6,470,389

As to claim 1, Chung teaches a method of accessing a group in a clustered computer system, wherein the clustered computer system includes a plurality of nodes, and wherein the group includes a plurality of members resident respectively on the plurality of nodes, the method comprising:

(a) receiving an access request on a first node in the plurality of nodes, wherein the access request identifies a cluster-private group name associated with the group (see col. 7 lines 13 – 37 , Chung discloses that a client sends a request to access with URL to a cluster server); and

(b) processing the access request on the first node to initiate a group operation on at least a subset of the plurality of nodes that map to the cluster-private group name (see col.7, lines 1 – 52, and col. 8 line 50 – col. 9 line 23, Chung discloses the request of a client or subset of clients is/are broadcast to multiple

clustered servers where filtering technique is utilized to ensure that only one server processes the request).

As to claim 2, Chung teaches the method further comprising generating the access request with a user job resident on the first node (see col. 1 lines 41 – 57 and col. 7, lines 1 – 52, Chung discloses sending an HTTP request/user job requesting for a particular service from a clustered network).

As to claim 3, Chung teaches the method further comprising forwarding the access request to a clustering infrastructure resident in the first node via a call from the user job (see col.2, lines 51 - 61 Chung discloses a client request is forwarded or routed to a selected server in a server cluster).

As to claim 4, Chung teaches the method further comprising:

(a) generating the access request with a user job resident on a second node in the plurality of nodes (see col. 1 lines 41 – 57 and col. 7 lines 5 – 12, Chung discloses a request from a subset of clients is sent to a clustered servers); and

(b) processing the access request with a proxy job resident on the second node by communicating the access request to the first node (see col. 1 lines 41 – 57 and col.7, line 62 – col. 8 line 15 Chung discloses a router that routes a client request to a clustered servers and a subset of clients in communication with a server of the clustered servers).

As to claim 5, Chung claims the method wherein the proxy job is a member of a cluster control group, the method further comprising:

(a) forwarding the access request from the user job to the proxy job (see col.2 lines 51 – 65 Chung discloses a user's request is sent to a router where the router dispatches the request to a selected server) ;

and

(b) forwarding the access request from the proxy job to a clustering infrastructure resident in the second node via a call from the proxy job (see col.2, line 51 – 65 and fig.2 , Chung discloses a client's request is forwarded to a cluster of servers via a router).

As to claim 6, Chung teaches the method further comprising retrieving the cluster-private group name with a user job by accessing a cluster-private data structure (see col. 6 lines 56 – col. 7 line 4, Chung's discloses the teaching of access logs associated with servers. Log data are known in the art to be inaccessible to the public and therefore constitute private data structure in a cluster).

As to claim 7, Chung teaches the method wherein the cluster-private data structure is resident on the same node as the user job (see col.6, line 54 – col. 7 line 12, Chung teaches logs that are associated with servers in a clustered network and so are the jobs or task that the client contacts the servers to perform).

As to claim 8, Chung teaches the method wherein the cluster-private data structure is accessible only from the node upon which the cluster-private data structure is resident (see col. 4 lines 50 – 63, Chung discloses that a particular server out of a multiple servers that has the data to process the client's request).

As to claim 9, Chung teaches the method wherein the cluster-private data structure is accessible only by jobs that are resident on the node upon which the cluster-private data structure is resident (see col.8, lines 50 – col. 9 line 23).

As to claim 10, Chung teaches the method wherein initiating the group operation comprises distributing messages to a plurality of group members resident on the nodes that map to the cluster-private group name. (see col.9, lines 23 – 50).

As to claim 11, Chung teaches the method wherein initiating the group operation further comprises accessing a group address data structure to retrieve a plurality of network addresses associated with the cluster-private group name, wherein distributing messages to the plurality of group members includes sending a message to each of the plurality of network addresses (see col. 8 line 50 – col. 9 line 23, Chung discloses accessing of a group addresses by sending a client's request to server cluster having an IP addresses S1 through SN, the limitation of distribution of messages is met by Chung's teaching of broadcasting requests packets having IP addresses to local area network , "LAN").

As to claim 12, Chung teaches the method wherein initiating the group operation is performed by a clustering infrastructure resident on the first node (see col.9, lines 23 – 50).

As to claim 13, Chung teaches the method wherein initiating the group operation includes retrieving with the clustering infrastructure plurality of addresses that are mapped to the cluster-private group name in a data structure that is local to the clustering infrastructure (see col.9, lines 23 – 50).

As to claim 14, Chung teaches the method wherein initiating the group operation includes locally resolving on the first node a mapping between the cluster-private group name and a plurality of addresses associated with at least the subset of the plurality of nodes (see col. 10 lines 29 – 36, Chung discloses the DNS server mapping the domain name to one of the IP addresses that belongs to one of the servers)..

As to claim 15, Chung teaches an apparatus comprising:

(a) a memory accessible by a first node among a plurality of nodes in a clustered computer system (see col. 7 lines 13 – 37 and fig. 4); and

(b) a program resident in the memory and executed by the first node, the program configured to access a group that includes a plurality of members resident respectively on the plurality of nodes by receiving an access request that identifies a cluster-private group name associated with the group, and processing the access request to initiate a group operation on at least a subset of the plurality of nodes that map to the cluster-private group name (see col. 7 lines 13 – 37).

As to claim 16, Chung teaches the apparatus further comprising a user job configured to generate the access request (see col.7, lines 38 – 52).

As to claim 17, Chung teaches the apparatus wherein the program comprises a clustering infrastructure resident on the first node (see col.7, lines 38 – 52).

As to claim18, Chung teaches the apparatus further comprising a proxy job configured to forward the access request from the user job to the clustering infrastructure (see col.8, lines 16 - 48).

As to claim 19, Chung teaches the apparatus further comprising

(a) a cluster-private data structure configured to store the cluster-private group name (see col. 7 lines 13 – 37); and

(b) a user job configured to access the cluster-private data structure to retrieve the cluster-private group name and generate the access request therefrom (see col.7, lines 38 – 52).

As to claim 20 Chung teaches the apparatus wherein the cluster-private data structure is resident on the same node as the user job (see col. 7 lines 13 – 37).

As to claim 21 Chung teaches the apparatus wherein the cluster-private data structure is accessible only from the node upon which the cluster-private data structure is resident (see col.8, lines 16 - 48).

As to claim 22,chung teaches the apparatus further comprising a group address data structure configured to store a plurality of network addresses associated with the cluster-private group name, wherein the program is configured to initiate the group operation by accessing the group address data structure to retrieve the plurality of

network addresses and sending a message to each of the plurality of network addresses (see col.4, lines 45 – 63).

As to claim 23, Chung teaches the apparatus wherein the program comprises a clustering infrastructure, and wherein the group address data structure is local to the clustering infrastructure (see col.8, lines 50 – col. 9 line 23).

As to claim 24, Chung teaches the apparatus wherein the program is further configured to process the access request by locally resolving on the first node a mapping between the cluster-private group name and a plurality of addresses associated with at least the subset of the plurality of nodes (see col.7, lines 38 – 52).

As to claim 25, Chung teaches a clustered computer system, comprising:

(a) a plurality of nodes coupled to one another over a network (see fig. 4);

(b) a group including a plurality of members resident respectively on the plurality of nodes and

(c) a program resident in a first node among the plurality of nodes and configured to access the group by receiving an access request that identifies a cluster-private group name associated with the group, and processing the access request to initiate a group operation on at least a subset of the plurality of nodes that map to the cluster-private group (see col.7, lines 38 – 52)

As to claim 26 Chung teaches a program product, comprising:

(a) a program resident in the memory and executed by a first node among a plurality of nodes in a clustered computer system, the program

configured to access a group that includes a plurality of members resident respectively on the plurality of nodes by receiving an access request that identifies a cluster-private group name associated with the group, and processing the access request to initiate a group operation on at least a subset of the plurality of nodes that map to the cluster-private group name (see col. 7 lines 13 – 37; and

(b) a signal bearing medium bearing the program (see col.3 lines 29 – 58).

As to claim 27, Chung teaches the program product wherein the signal bearing medium includes at least one of a transmission medium and a recordable medium (see col.3 lines 29 – 58).

(10) Response to Argument

The examiner summarizes the various points raised by appellant and addresses replies individually.

As per appellant, Chung does not disclose the concept of a cluster group (see brief page 10, argument A).

In response to A), Chung discloses methods and apparatus for hosting a network service on a cluster of servers, Chung also discloses multiple clients or nodes requesting information from a subset of servers in a cluster network where only one

server out of the subset of servers process the request, which is clearly taking place in a cluster environment (see col. 4 lines 50 – 63).

As per appellant, Chung does not disclose the use of a logical entity known as a group, or the use of a cluster private group name that can not be accessed outside of a node that participate in a cluster as specifically recited in claim 1 (see brief page 10, argument B).

In response to B). Chung discloses the use of a logical entity as a group since a subset or a group of clients are assigned to a particular server N(i) servers N, or a ghost IP addresses S1 – Sn (see col.7 lines 5 – 38). However, "the use of cluster private group name that can not be accessed outside of a node that participate in a cluster", this limitation is not in the claim. Further more, a cluster private group name was merely mentioned but it was never elaborated on the nature of the communication or accessibility, also it failed to disclose whether this service/communication was internal or external to the entity fulfilling the requested service.

As per appellant, Chung does not disclose generating the access request with a user job on the first node (see brief page 12, argument C).

In response to C), Chung discloses that a client generates a request for a particular service (user job) where such a request is delivered to a particular

server of a clustered network to process (see col. 1 lines 41 – 57 and fig. 1).

As per appellant, Chung does not disclose the proxy job is a member of a cluster control group and forwarding the access request from proxy to a cluster infrastructure (see brief page 13 argument D).

In response to D) Chung discloses a proxy or a router or a gateway (see fig. 2 item # 32) which directs the request of a client to a selected server in a cluster network (see fig.2 item # 14 K) for processing. Chung clearly illustrates that a proxy/router/gateway is performing relay functions by directing the client's request to a device/server within the clustered environment. Furthermore the appellant's use of the term "proxy job" is unclear as it is used in a manner that makes certain binary communication appears as if it were a hardware device within the environment.

As per appellant, Chung does not disclose retrieving the cluster private group name with user job by accessing a cluster private data structure (see brief page 14 argument E).

In response to E), Chung's discloses the teaching of access logs associated with servers. Log data are known in the art to be inaccessible to the public and therefore constitute private data structure in a cluster (see col. 6 lines 56 – col. 7 line 4).

As per appellant, Chung does not disclose the cluster private data structure is resident on the same node as the user job (see brief Page 14, argument F).

In response to F), Chung discloses logs, which is a form of data structure, that are associated with servers in a clustered network and so are the jobs or tasks that the client contacts the servers to perform (see col. 6 line 54 – col. 7 line 12). Moreover, Chung discloses a dispatcher that is a part of the clustered environment which relays/ directs user jobs /requests within the environment, it inherently executes a verifying mechanism utilizing a non – public data source/structure to forward the user job/ requests within the cluster (see fig. 4).

As per appellant, Chung does not disclose cluster private data structure is accessible only by jobs that are resident on the node upon which the cluster private data structure is resident (see brief page 14 argument G).

In response to G), Chung discloses that a particular selected server provides the requested data to a client (see col. 4 lines 50 – 63). Moreover, Chung discloses a dispatcher broadcasting a client's request to a cluster of servers and only one of the clustered servers process the request by implementing hash function to the Ip address associated with the client's request.

As per appellant initiating the group operation further comprises accessing a group address data structure to retrieve a plurality of network addresses associated with the cluster private group name and that distributing messages to the plurality of network of group members includes sending a message to each of the plurality of network addresses, see brief page 16 argument H).

In response to H), As is well known in the art, what is described above is the concept of binding a name to an address which is a clear definition of DNS (Domain Name System/Server/Servers) which Chung clearly discloses. Additionally, the distribution of messages utilizing an already existing and widely used communication method called multicasting / broadcasting (see col. 1, line 65 – col. 2 line 14 and col.8, line 50 – col. 9, line 23).

As per appellant, Chung does not disclose initiating the group operation is performed by a clustering infrastructure resident on the first node (see brief page 16 argument I).

In response to I), Chung discloses a dispatcher broadcasting a client's request to a cluster of servers 'clustering infrastructure". The cluster of servers perform the method of filtering in order to ensure that only one server processes a client's request (see col. 8 line 50 – col. 9 line 23).

As per appellant, Chung does not disclose initiating the group operation includes retrieving with the clustering infrastructure a plurality Of addresses that are mapped to the cluster private group name in a data structure that is local to the clustering infrastructure, see brief page 17Argument J).

In response to J), Chung discloses DNS (Domain Name Server) which clusters private group names, stores IP addresses of a specific group into their associated logs. Furthermore, DNS (Domain Name System/Server/Servers) translates group names, machine names or domain names into IP addresses. (See col. 6 lines 54 – col. 7 line 12 and col. 10 lines 29 – 36).

As per appellant, Chung does not disclose initiating the group operation includes locally resolving on the first node a mapping between the cluster private group name and a plurality of addresses associated with at least the subset of the plurality of nodes (see brief page 17, argument K).

In response to K), since the clustered environment disclosed by Chung is clearly bi – directional communication, it is illogical to contest a point based on unicast or one way communication. If a node or subset of nodes is/are able to communicate in the direction of the cluster, it is very plausible to assume the opposite is also true. In the

of the cluster, it is very plausible to assume the opposite is also true. In the case of Chung, he employs the broadcast communication technique where a device within the cluster environment responds to a request from a node or subset of nodes/clients. To illustrate this point, when a cluster- based server fails, the communication with the subset of clients is automatically failed over to an active server by means of rehashing, and the connection of the remaining clients are not affected by the failure. The language in that passage assumes or alludes to active bi – directional communication (see col. 6 line 56 – col. 7 line 12).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejection should be sustained.

Sargon Nano

Jan. 5, 2007

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